

Title: NOVEL MEGAKARYOCYTIC PROTEIN  
TYROSINE KINASES

Inventor(s): Axel ULLRICH et al.

Appl. No.: 09/977,260

2007260 .050002

#6

CTCGCTCCAAGTTGTGCAGCCGGACCGCTCGGGGTGTGCAGCCGGCTCGCGAGCCCTCTCGGGGGCGCGCGGGCGGCTCGGGG 90

GCGCCCCCTGAGCAGAAAACAGGAAGAACAGGCTCGGTCCAGTGGCAGCCAGCTCCCTACCTCTGTGCCAGCCGCTCGCCTGTGGCA 180

GCCATTCCCAGCGTCCCCGACTGTGACCACTTGCTCAGTGTGCTCTCACCTGCCCTCAGTTCCCTCTCGGGGGCGATGGCGGGCGAG 270

M A G R

SmaI

GCTCTCTGTTTCTCGCGGGCATTTCACGGCTGTGATTCTGCTGAGGAACCTCCCGGGTGAGCCCCGCTTCTCCGAGCCTGGCACC 360  
G S L V S W R A F H G C D S A E E L P R V S P R F L R A W H

SmaI

CCCCTCCCGTCTCAGCCAGGATGCCAAGAGCGCGTGGGCCCCGGCAGCCAGTGTATCACCAATGCCAGCACACCGCCCCCAAGCCAG 450  
P P P V S A R M P T R R W A P G T Q C I T K C E H T R P K P

StuI

KpnI

GGAGCTGGCCTTCGCAAGGGCGACGTGGTCACCATCCTGGAGGCTGGGAGAACAAGAGCTGGTACCGGTCAAGCACCACACCACTG 540 SH 3  
G E L A F R K G D V V T I L E A C E N K S W Y R V K H H T S

PvuII

GACAGGAGGGCTGCTGGCAGCTGGCGCGTGGGGAGCGGAGGCCCTCTCCGAGACCCCAAGCTCAGCCTCATGCCGTGTTCCAGC 630  
G Q E G L L A A G A L R E R E A L S A D P K L S L M P W F H

PvuII PstI

GGAAGATCTCGGGCAGGAGCTGTCCAGCAGCTGCAGCCTCCGAGGATGGCTGTTCCTGCTGGCGAGTCCCGCGCCACCCCGGCG 720  
G K I S G Q E A V Q Q L Q P P E D G L F L V R E S A R H P G SH 2

ClaI

ACTAGCTCCTGTGCGTGAGCTTTCGCGCGCAGCTCATCCACTACCGGTGCTGCACCGCGACCGCCACCTCACAATCGATAGGCCGTGT 810  
D Y V L C V S F G R D V I H Y R V L H R D G H L T I D E A V

TCTTCTGCAACCTCATGGACATGGTGCAGCATTACAGCAAGGACAAGGGCGCTATCTGCACCAAGCTGGTGAGACCAAGCGGAACACG 900  
F F C N L M D M V E H Y S K D K G A I C T K L V R P K R K H

FIG.1A

FIG. 1 B

09977260 .050500  
Title: NOVEL MEGAKARYOCYTIC PROTEIN  
TYROSINE KINASES  
Inventor(s): Axel ULLRICH et al.  
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CAGGTGCCCCAGCCTCCGTCTCAGGGCAGGACGCGACGGCTCCACCTCGCCCCGAAGCCAGGAGCCCTGACCCACCCGGTGGGGCCCT 1800  
A G A P A S V S G Q D A D G S T S P R S Q E P  
TGGCCCCAGAGACCGAGAGAGTGGAGAGTGGCGGTGGGGGCACTGACCAGGCCCAAGGAGGTCCAGGCGGCAAGTCATCCTCCTGG 1890  
TGGCCACAGCAGGGGCTGGCCACGTACGGGGCTCTGGCGGGCCGTGGACACCCAGACCTGCCAAGGATGATCGCCCGATAAAGACCG 1980  
ATTCTAAGGACTCTAAAAA 2000

FIG.1C

Title: NOVEL MEGAKARYOCYTIC PROTEIN  
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CCGCTTTTGCCTAGAGCTTGAGAGTCAAAG AGGACCCACATGTATACTTCGGCTCTAGCGAGT AGGATGATAATATCGATACA 90  
 M D T

AAATCTATTCTAGAAGAACTTCTTCTCAAAGATCACAGCAAAAGAAGAAATGTCACCAATAATTACAAAGAACGGCTTTTGTGTTTG 180  
 K S I L E E L L L K R S Q Q K K K M S P N N Y K E R L F V L

ACCAAAACAAACCTTTCCTACTATGAATATGACAAAATGAAAGCGGCAGCAGAAAAGGATCCATTGAAATTAAGAAAATCAGATGTGTG 270  
 T K T N L S Y Y E Y D K M K R G S R K G S I E I K K I R C V

GAGAAAGTAAATCTCGAGGAGCAGACGCCCTGTAGAGAGACAGTACCCATTTCAGATTGTCTATAAAGATCGGCTTCTCTATGTCTATGCA 360  
 E K V N L E E Q T P V E R Q Y P F Q I V Y K D G L L Y V Y A PH

TCAAATGAAGAGAGCCGAAGTCAGTGGTTGAAAGCATTACAAAAGAGATAAGCGGTAACCCACCTGCTGGTCAAGTACCATAGTGGG 450  
 S N E E S R S Q W L K A L Q K E I R G N P H L L V K Y H S G

TTCTTCGTGGACCGGAAGTTCCTGTGTTGCCAGCAGAGCTGTAAAGCAGCCCCAGGATGTACCCCTCTGGGAAGCATATGCTAATCTGCAT 540  
 F F V D G K F L C C Q Q S C K A A P G C T L W E A Y A N L H

ACTGCAGTCAATGAAGAGAAACACAGAGTTCACACCTTCCCAGACAGAGTCTGAAGATACCTCGGCGAGTTCCTGTCTCAAAATGGAT 630  
 T A V N E E K H R V P T F P D R V L K I P R A V P V L K M D

GCACCATCTTCAAGTACCACTCTAGCCCAATATGACAACGAATCAAAGAAAACATATGGCTCCCAGCCACCATCTTCAAGTACCACTCTA 720  
 A P S S S T T L A Q Y D N E S K K N Y G S Q P P S S S T S L SH3

CGGCAATATGACAGCAACTCAAAGAAAATCTATGGCTCCCAGCCAACTTCAACATGCAGTATATTCCAAGGGAAGACTTCCCTGACTGG 810  
 A Q Y D S N S K K I Y G S Q P N F N M Q Y I P R E D F P D W

TGCGAAGTAAGAAAACGAAAAGTAGCAGCAGCAGTGAAGATGTTGCAAGCAGTAACCAAAAAGAAAGAAATGGAATCACACCACCTCA 900  
 W Q V R K L K S S S S S S E D V A S S N Q K E R N V N H T T S

AAGATTTTCATCGGAATTCCTGAGTCAAGTTCATCTGAAGAAGAGCAAAACCTGGATGATTATGACTGGTTTGCTGCTAACATCTCCAGA 990  
 K I S W E F P E S S S S S E E E E N L D D Y D W F A G N I S R

TCACAATCTGAACAGTTACTCAGACAAAAGGAAAAGAGGAGCATTATCGGTTAGAAATTCGAGCCAAGTGGGAATGTACACAGTGTCC 1080  
 S Q S E Q L L R Q K G K E G A F M V R N S S Q V G M Y T V S SH4

TTATTTAGTAAGCCTGTGAATGATAAAAAAGAACTGTCAAACATTACCAGTGCATACAAATGCTGAGAACAAATTATACCTGGCAGAA 1170  
 L F S K A V N D K K G T V K H Y H V H T N A E N K L Y L A E

FIG.2A

## Title: NOVEL MEGAKARYOCYTIC PROTEIN

## TYROSINE KINASES

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AACTACTGTTTIGATTCCATTCCAAAGCTTATTCATTATCATCAACACAATTCAGCAGGCATGATCACACGGCTCCGCCACCCTGTGTCA 1260  
N Y C F D S I P K L I H Y H Q H N S A G M I T R L R H P V S

ACAAAGCCCAACAACGTCCCGACTCTGTGTCCCTCGGAATGGAATCTCGGAAGTAAAAGAGAAGAGATTACCTTGTGAAGGAGCTG 1350  
T K A N K V P D S V S L G N G I W E L K R E E I T L L K E L

GCAAGTGGCCAGTTTGGAGTGGTCCAGCTCGGCAAGTGAAGCGGCAGTATGATGTTGCTGTTAAGATGATCAAGGAGCGCTCCATGTCA 1440  
G S G Q F G V V Q L G K W K G Q Y D V A V K M I K E G S M S

GAAGATGAATTCTTTCAGGAGGCCAGACTATGATGAAACTCAGCCATCCCAAGCTGGTTAAATCTATGAGTGTGTTCAAAGGAATAC 1530  
E D E F F Q E A Q T M M K L S H P K L V K F Y G V C S K E Y

CCCATATACATAGTCACTGAATATATAAGCAATGGCTGCTTGGTGAATTACCTGAGGAGTCACGAAAAGGACTTGAACCTTCCCAGCTC 1620 TK  
P I Y I V T E Y I S N G C L L N Y L R S H G K G L E P S Q L

TTAGAAATGTCTACGATGTCTGTGAAGGCATGGCCTTCTTGGAGAGTCACCAATTCATACACCGGACTTGGCTGCTCGTAACTGCTTG 1710  
L E M C Y D V C E G M A F L E S H Q F I H R D L A A R N C L

GTGGACAGAGATCTCTGTGTGAAAGTATCTGACTTTGGAATGACAAGCTATGTTCTTGATGACCAGTATGTCAGTTCAGTCCGAACAAAG 1800  
V D R D L C V K V S D F G M T R Y V L D D Q Y V S S V G T K

TTTCCAGTCAAGTGGTCCAGCTCCAGAGTGTTCATTACTTCAAATACAGCAGCAAGTCAGACGTATGGCATTTCGGATCCTGATGTGC 1890  
F P V K W S A P E V F H Y F K Y S S K S D V W A F G I L M W

GAGGTGTTACGCTCGGCAAGCAGCCCTATGACTTGATGACAACTCCCAGGTGGTTCTGAAGGTCTCCAGGGCCACAGCCTTTACCGG 1980  
E V F S L G K Q P Y D L Y D N S Q V V L K V S Q G H R L Y R

CCCCACCTGGCATCGGACACCATCTACCAGATCATGTACAGCTGCTGGCAGAGCTTCCAGAAAAGCGTCCACATTTACCAACTCCTG 2070  
P H L A S D T I Y Q I M Y S C W H E L P E K R P T F Q Q L L

TCITCCATTGAACCACTTCGGGAAAAGACAAGCATTGAAGAAGAAATTAGGAGTGCTGATAAGAATGAATATAGATGCTGCCAGCATT 2160  
S S I E P L R E K D K H .

TTCAATCATTTTAAGGAAAGTAGCAAGGCATAATGTAATTTAGCTAGTTTTTAATAGTGTCTCTGATTGCTATTATTTAGAAATGAA 2250

CAAGGCAGGAAACAAAAGATTCCCTTGAAATTTAGGTCAAATTAGTAATTTGTTTATGCTGCCCTGATATAACACTTCCAGCCTATA 2340

GCAGAAGCACATTTTCAGACTGCAATATAGAGACTGTGTTTATGTGTAAAGACTGAGCAGAACTGAAAAATTACTTATTGGATATTCAAT 2430

CITTTCTTTATATTGTCATTGTCACAACAATTAATATACTACCAAGTACAAAAAAAAAAAAAAAAAAAAA 2500

FIG.2B

09977260 . 056802  
Title: NOVEL MEGAKARYOCYTIC PROTEIN  
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CCGCACTGGTCGAAAGACAGGAACAGACTTGAACAGCGGGAGAGCTCTGGCGAAACGAAGACGTGGAGGTTTTACCAGCGATAAGAAG 90  
AAAAGACACCTTCTAGTGACGAGCTGCCAGCTCTGCTCAGTTTTGCCCTGGGGTAGCACCTCCAGCCACAGAAAGCAAGCCGGTAAG 180  
TCTCTCCAGGTAGGACTTGCTGCAACCCAGCTGCTGGACTGATCTGAAACGGGACTTTGCATACTCTCCGAAGTATGGTGAGTTGGTGCT 270  
M V S W C  
GACTTCAAAGTTGCCTGGTGAAGGAAGATAAGGTGGATCCGAGAGACTAAGGGAGAGGGAGAAGCCCTGCTCCTCTTCTCCCACCAAG 360  
GCACAATGAGCAACATCTGTGACAGGCTCTGGGAGTACCTAGAACCCTATCTCCCTGTGTTGTCCAGGAGGCAGACAAGTCAACCGTGA 450  
M S N I C Q R L W E Y L E P Y L P C L S T E A D K S T V  
TTGAAATCCAGGGCGCTTTGCTCTCCCAGTCACAGAGGCATGCCACTACTTTGTCGCTTTGTTGATTACCAGGCTCGGACTGCTG 540  
I E N P G A L C S P Q S Q R H G H Y F V A L F D Y Q A R T A  
AGGACTTGAGCTTCCGAGCAGGTGACAAACTTCAAGTTCTGGACACTTTGCATGAGGGCTGGTGGTTGCCAGACACTTGGAGAAAAGAC 630 SH 3  
E D L S F R A G D K L Q V L D T L H E G W W F A R H L E K R  
GAGATGGCTCCAGTCAGCAACTACAAGCTATATTCCTTCTAACTACGTGGCTGAGGACAGAAGCCTACAGGCAGAGCCGTGGTTCTTTG 720  
R D G S S Q Q L Q G Y I P S N Y V A E D R S L Q A E P W F F  
GAGCAATCGGAAGATCAGATGCAGAGAACTATTATATTCAGAAAACAAGACCGTTCTTTCTAATCAGAGAAAGTGAAGCCAAA 810  
G A I G R S D A E K Q L L Y S E N K T G S F L I R E S E S Q SH 2  
AAGGAGAATTCTCTTTTCAGTTTTAGATGGAGCAGTTGTAAACACTACAGAATTAAGACTCGATGAAGGGGATTTTTTCTCAGCG 900  
K G E F S L S V L D G A V V K H Y R I K R L D E G G F F L T  
GAAGAAGATCTTTCAACACTGAACGAATTTGTGAGCCACTACACCAAGACAAGTACCGCCCTGTGTGTCAAGCTGGGAAACCATGCT 990  
R R R I F S T L N E F V S H Y T K T S D G L C V K L G K P C  
TAAAGATCCAGGTCCCAGCTCCATTGATTTGTCGTATAAAACCGTGGACCAATGGGAGATAGACCGCAACTCCATACAGCTTCTGAAGC 1080  
L K I Q V P A P F D L S Y K T V D Q W E I D R N S I Q L L K  
GATTGGATCTGGTCAGTTTGGCGAAGTATGGGAAGGTCTGTGGAACAATACCACTCCAGTAGCAGTGAACATTAAACAGGTTCAA 1170  
R L G S G Q F G E V W E G L W N N T T P V A V K T L K P G S  
TGGATCCAAATGACTTCTGAGGGAGGCACAGATAATGAAGAACCTAAGACATCCAAAGCTTATCCAGCTTTATGCTGTTTGCACTTTAG 1260  
M D P N D F L R E A Q I M K N L R H P K L I Q L Y A V C T L

FIG.3A

Title: NOVEL MEGAKARYOCYTIC PROTEIN  
 TYROSINE KINASES  
 Inventor(s): Axel ULLRICH et al.  
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		<u>MKK1</u>	<u>MKK2</u>
HUMAN			
MEG/ERYTH	MEG-01	+++	+++
	K562	++	+
	MO7E	++	+
	HEL	+++	++
MYELO/MAC	KG-1	+	++
	HL-60	+	+
	TF-1	+	+
B-CELL	ALL-1	-	+
	RAJI	-	-
	DAUDI	-	-
T-CELL	MOLT-3	-	-
	JURKAT	-	-
EPITHELIAL	HELA	-	-
RODENT			
	BM	+	+++
	SPLEEN	+++	+
	THYMUS	-	-
	LIVER	-	-
	BRAIN	+	-
RAT NEURAL	P19	+	-

FIG.4

09/977,260 - 050602  
Title: NOVEL MEGAKARYOCYTIC PROTEIN  
TYROSINE KINASES  
Inventor(s): Axel ULLRICH et al.  
Appl. No.: 09/977,260

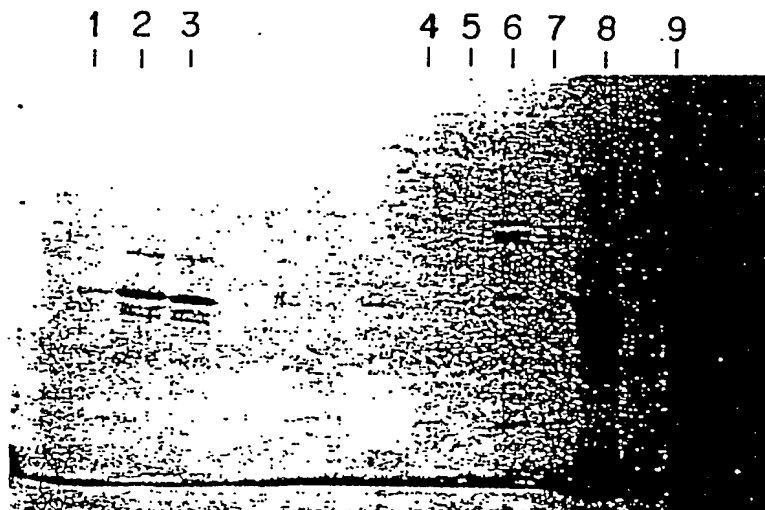


FIG. 5



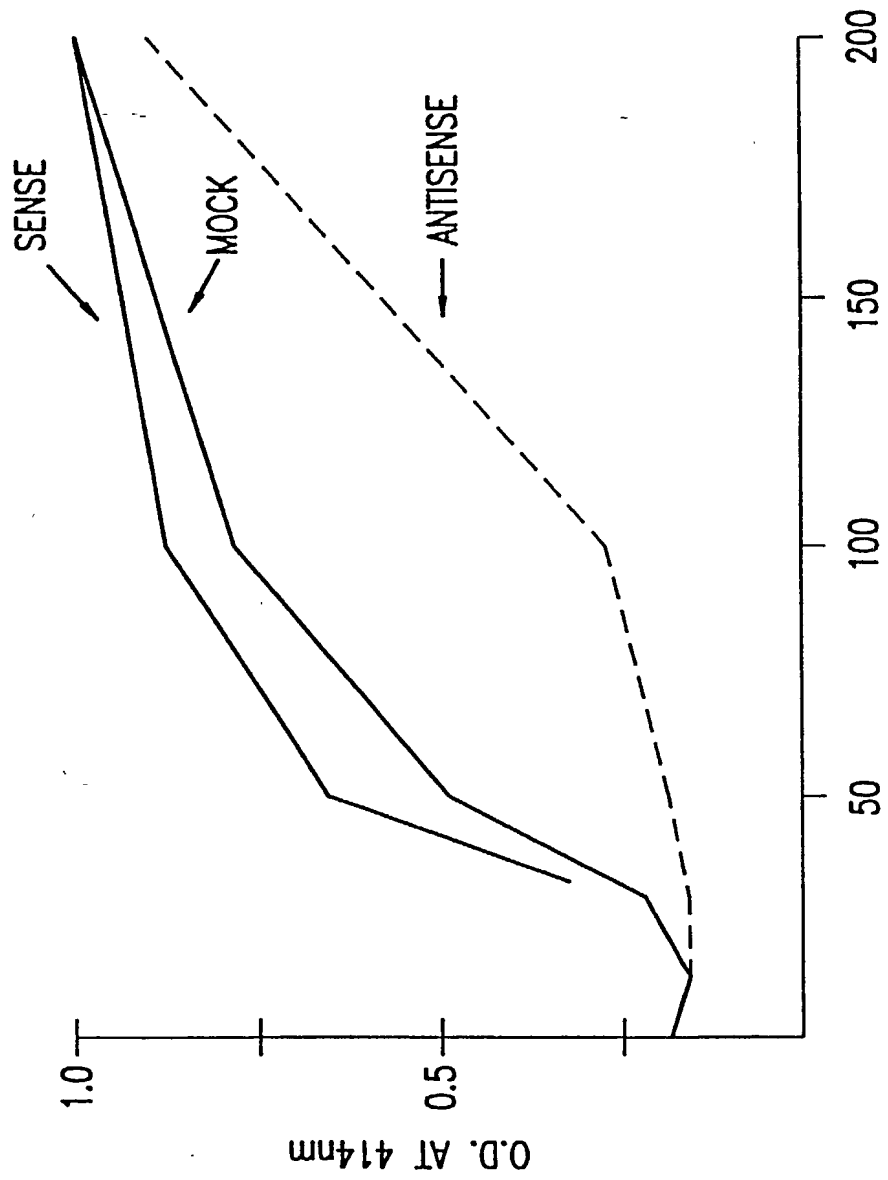


FIG. 6A

09977260 .050002

Title: NOVEL MEGAKARYOCYTIC PROTEIN  
TYROSINE KINASES

Inventor(s): Axel ULLRICH et al.

Appl. No.: 09/977,260

MKKI PROTEIN EXPRESSION

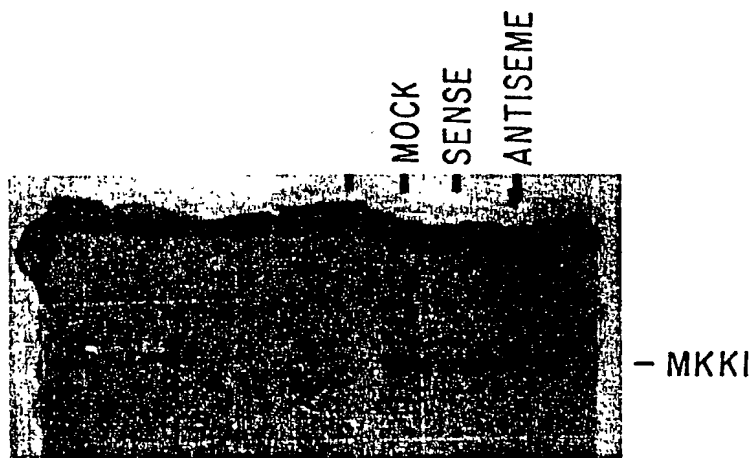


FIG. 6B

Title: NOVEL MEGAKARYOCYTIC PROTEIN  
TYROSINE KINASES

Inventor(s): Axel ULLRICH et al.

Appl. No.: 09/977,260

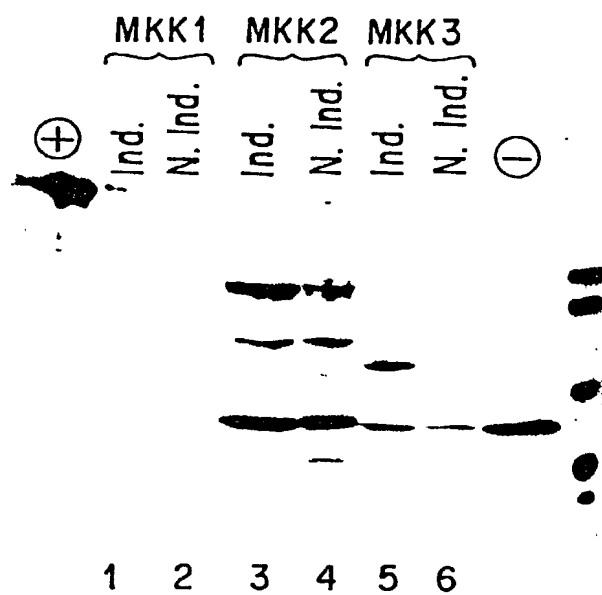


FIG. 7

Title: NOVEL MEGAKARYOCYTIC PROTEIN  
TYROSINE KINASES

Inventor(s): Axel ULLRICH et al.

Appl. No.: 09/977,260

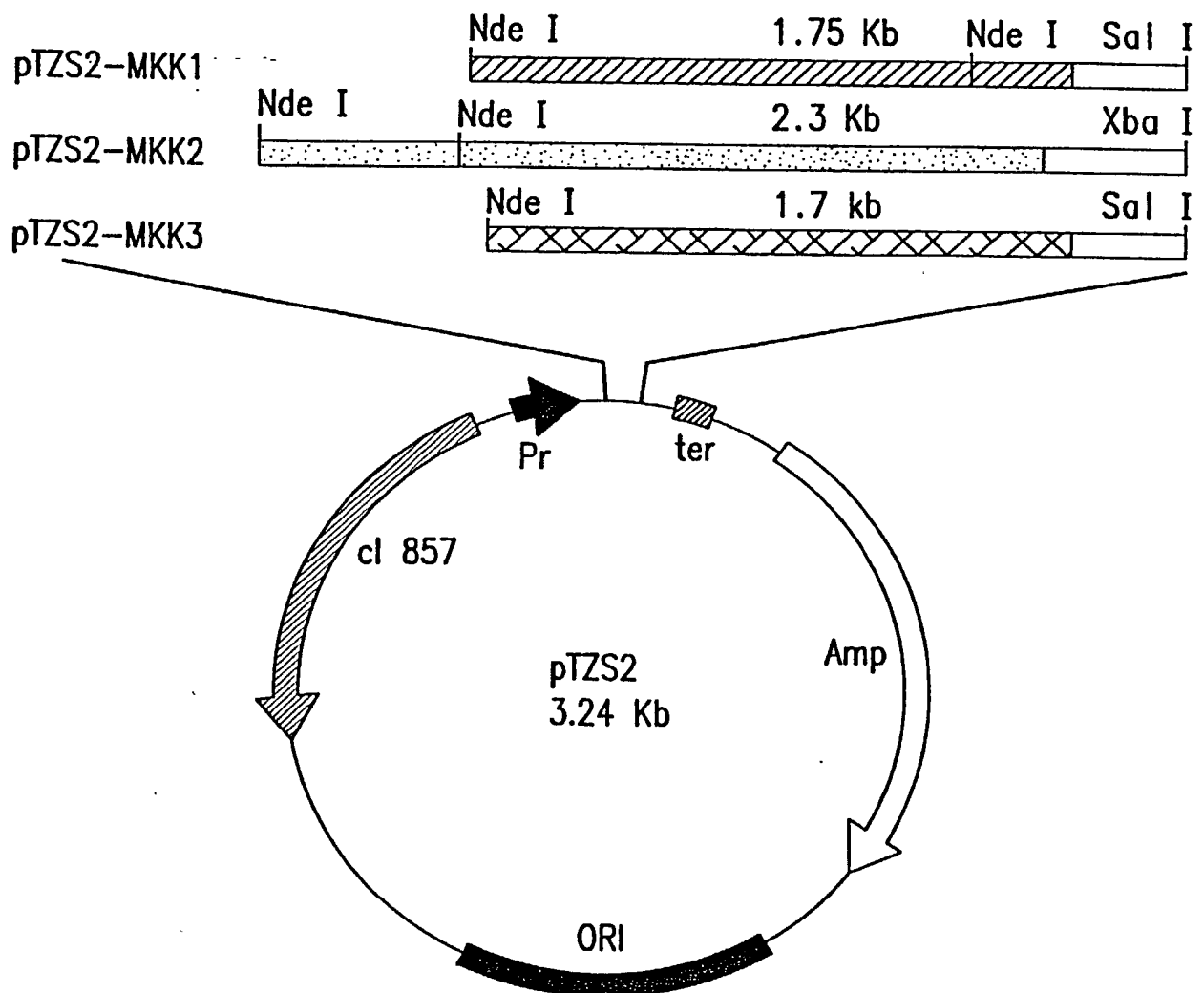


FIG.8

09977260 . 050002  
Title: NOVEL MEGAKARYOCYTIC PROTEIN  
TYROSINE KINASES  
Inventor(s): Axel ULLRICH et al.  
Appl. No.: 09/977,260

1	M A G R G S L V S W R A F H G C D S A E E L P R V S P R F L	MKK1 aa
1	M S A I Q A A - - - - -	hCSK (JH0559)
31	R A W H P P P V S A R M P T R R W A P G T O C I T K C E H T	MKK1 aa
8	- - - - - W P S G T E C I A K Y N F H	hCSK (JH0559)
61	R P K P G E L A F R K G D V V T I L E A C E N K S W Y R V K	MKK1 aa
22	G T A E Q D L P F C K G D V L T I V A V T K D P N W Y K A K	hCSK (JH0559)
91	H H T S G Q E G L L A A G A L R E R E A L S A D P K L S L M	MKK1 aa
52	N K V - G R E G I I P A N Y V Q K R E G V K A G T K L S L M	hCSK (JH0559)
121	P W F H G K I S G Q E A V Q Q L Q P P E D G L F L V R E S A	MKK1 aa
81	P W F H G K I T R E Q A E R L L Y P P E T G L F L V R E S T	hCSK (JH0559)
151	R H P G D Y V L C V S F G R D V I H Y R V L H R D G H L T I	MKK1 aa
111	N Y P G D Y T L C V S C D G K V E H Y R I M Y H A S K L S I	hCSK (JH0559)
181	D E A V F F C N L M D M V E H Y S K D K G A I C T K L V R P	MKK1 aa
141	D E E V Y F E N L M Q L V E H Y T S D A D G L C T R L I K P	hCSK (JH0559)
211	K R K H G T K S A E E E L A R A G W L L N L Q H L T L G A Q	MKK1 aa
171	K V M E G T V A A Q D E F Y R S G W A L N M K E L K L L Q T	hCSK (JH0559)
241	I G E G E F G A V L Q G E Y L G Q K V A V K N I K C D V T A	MKK1 aa
201	I G K G E F G D V M L G D Y R G N K V A V K C I K N D A T A	hCSK (JH0559)
271	Q A F L D E T A V M T K M Q H E N L V R L L G V I L H Q - -	MKK1 aa
231	Q A F L A E A S V M T Q L R H S N L V Q L L G V I V E E K G	hCSK (JH0559)
299	G L Y I V M E H V S K G N L V N F L R T R G R A L V N T A Q	MKK1 aa
261	G L Y I V T E Y M A K G S L V D Y L R S R G R S V L G G D C	hCSK (JH0559)
329	L L Q F S L H V A E G M E Y L E S K K L V H R D L A A R N I	MKK1 aa
291	L L K F S L D V C E A M E Y L E G N N F V H R D L A A R N V	hCSK (JH0559)
359	L V S E D L V A K V S D F G L A K A E R K G L D S S R L P V	MKK1 aa
321	L V S E D N V A K V S D F G L T K E A S S T Q D T G K L P V	hCSK (JH0559)

FIG.9A

Title: NOVEL MEGAKARYOCYTIC PROTEIN  
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389	K W T A P E A L K H G K F T S K S D V W S F G V L L W E V F	MKK1 aa
351	K W T A P E A L R E K K F S T K S D V W S F G I L L W E I Y	hCSK (JH0559)
419	S Y G R A P Y P K M S L K E V S E A V E K G Y R M E P P E G	MKK1 aa
381	S F G R V P Y P R I P L K D V V P R V E K G Y K M D A P D G	hCSK (JH0559)
449	C P G P V H V L M S S C W E A E P A R R P P F R K L A E K L	MKK1 aa
411	C P P A V Y E V M K N C W H L D A A M R P S F L Q L R E Q L	hCSK (JH0559)
479	A R E L R S A G A P A S V S G Q D A D G S T S P R S Q E P	MKK1 aa
441	E H - - - - - I K T H E L H - - - - - L	hCSK (JH0559)

FIG.9B

Title: NOVEL MEGAKARYOCYTIC PROTEIN  
TYROSINE KINASES

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1	M	D	T	K	S	I	L	E	E	L	L	K	R	S	Q	Q	K	K	K	M	S	P	N	N	Y	K	E	R	L	MKK2	aa		
1	M	A	A	-	V	I	L	E	S	I	F	L	K	R	S	Q	Q	K	K	K	T	S	P	L	N	F	K	K	R	L	hAtk	(X58957)	
1	M	N	N	F	I	L	L	E	E	Q	L	I	K	K	S	Q	Q	K	R	R	T	S	P	S	N	F	K	V	R	F	hTKT	(L10717)	
1	M	M	V	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	mTec	(X5663)	
31	F	V	L	T	K	T	N	L	S	Y	Y	E	-	-	Y	D	K	M	K	R	G	S	R	K	G	S	I	E	I	K	MKK2	aa	
30	F	L	L	T	V	H	K	L	S	Y	Y	E	Y	D	F	E	R	G	R	R	G	S	K	K	G	S	I	D	V	E	hAtk	(X58957)	
31	F	V	L	T	K	A	S	L	A	Y	F	E	D	R	-	-	H	G	K	K	R	T	L	K	G	S	I	E	L	S	hTKT	(L10717)	
4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	mTec	(X5663)	
59	K	I	R	C	V	E	K	V	N	L	E	E	Q	T	P	V	E	R	Q	-	-	-	-	-	-	-	-	-	-	-	-	MKK2	aa
60	K	I	T	C	V	E	T	V	V	P	E	K	N	P	P	P	E	R	Q	I	P	R	R	G	E	E	S	S	E	M	hAtk	(X58957)	
59	R	I	K	C	V	E	I	V	K	S	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	hTKT	(L10717)
4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	mTec	(X5663)	
78	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	MKK2	aa
90	E	Q	I	S	I	I	E	R	F	P	Y	P	F	Q	V	V	Y	D	E	G	P	L	Y	V	F	S	P	T	E	E	hAtk	(X58957)	
70	-	-	I	S	I	P	C	H	Y	K	Y	P	F	Q	V	V	H	D	N	Y	L	L	Y	V	F	A	P	D	R	E	hTKT	(L10717)	
4	-	-	-	-	-	-	-	-	-	-	S	F	P	V	K	I	N	F	H	S	S	P	-	-	-	-	-	-	-	-	-	mTec	(X5663)
98	S	R	S	Q	W	L	K	A	L	Q	K	E	I	R	G	N	P	H	L	L	V	K	Y	H	S	G	F	F	V	D	MKK2	aa	
120	L	R	K	R	W	I	H	Q	L	K	N	V	I	R	Y	N	S	D	L	V	Q	K	Y	H	P	C	F	W	I	D	hAtk	(X58957)	
98	S	R	Q	R	W	V	L	A	L	K	E	E	T	R	N	N	N	S	L	V	P	K	Y	H	P	N	F	W	M	D	hTKT	(L10717)	
17	S	R	D	R	W	V	K	K	L	K	E	E	I	K	N	N	N	N	I	M	I	K	Y	H	P	K	F	W	A	D	mTec	(X5663)	
128	G	K	F	L	C	C	Q	Q	S	C	K	A	A	P	G	C	T	L	W	E	A	Y	A	N	L	H	T	A	V	N	MKK2	aa	
150	G	Q	Y	L	C	C	S	Q	T	A	K	N	A	M	G	C	Q	I	L	E	N	R	N	G	S	L	K	P	G	S	hAtk	(X58957)	
128	G	K	W	R	C	C	S	Q	L	E	K	L	A	T	G	C	A	Q	Y	D	-	-	-	-	-	-	-	-	-	-	-	hTKT	(L10717)
47	G	S	Y	Q	C	C	R	Q	T	E	K	L	A	P	G	C	E	K	Y	N	L	F	E	S	S	I	-	-	-	-	-	mTec	(X5663)
158	E	E	K	H	R	V	P	T	F	P	D	R	V	L	K	I	P	R	A	V	P	V	L	K	M	D	A	P	S	S	MKK2	aa	
180	S	H	R	K	T	K	K	P	L	P	P	-	-	-	-	T	P	E	E	D	Q	I	L	K	K	P	L	P	P	E	hAtk	(X58957)	
149	T	K	N	A	S	K	K	P	L	P	P	-	-	-	-	T	P	E	D	N	R	-	-	-	-	-	-	-	-	-	-	hTKT	(L10717)
73	-	-	-	-	-	R	K	T	L	P	P	-	-	-	-	A	P	E	-	-	-	-	I	K	K	R	R	P	P	-	mTec	(X5663)	
188	S	T	T	L	A	Q	Y	D	N	E	S	K	K	N	Y	G	S	Q	P	P	S	S	S	T	S	L	A	Q	Y	D	MKK2	aa	
206	P	A	A	A	P	V	S	T	S	E	L	K	K	-	-	-	-	-	-	-	-	-	-	V	V	A	L	Y	D	hAtk	(X58957)		
166	-	-	-	R	P	L	W	E	P	E	E	T	V	-	-	-	-	-	-	-	-	-	-	V	I	A	L	Y	D	hTKT	(L10717)		
89	P	P	I	P	P	E	E	E	N	T	E	E	I	-	-	-	-	-	-	-	-	-	-	-	V	V	A	M	Y	D	mTEC	(X5663)	

FIG.10A

## Title: NOVEL MEGAKARYOCYTIC PROTEIN

## TYROSINE KINASES

Inventor(s): Axel ULLRICH et al.

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218	S N S K K I Y G S Q P N F N M Q Y I P R E D F P - D W W Q V	MKK2	aa
225	Y M P M N A N D L Q L R K G D E Y F I L E E S N L P W W R A	hA tk	(X58957)
182	Y Q T N D P Q E L A L R R N E E Y C L L D S S E I H W W R V	hTKT	(L10717)
108	F Q A T E A H D L R L E R G Q E Y I I L E K N D L H W W R A	mTec	(X5663)
247	R K L K S S S S S E D V A S S N Q K E R N V N H T T S K I S	MKK2	aa
255	R D - - K N G Q E G Y I P S N Y V T E - A - - - - -	hA tk	(X58957)
212	Q D - - R N G H E G Y V P S S Y L V E K S - - - - -	hTKT	(L10717)
138	R D - - K - - - - - - - - - - - - - - - - -	mTec	(X5663)
277	W E F P E S S S S E E E E N L D D Y D W F A G N I S R S Q S	MKK2	aa
273	- - - - - E D S I E M Y E W Y S K H M T R S Q A	hA tk	(X58957)
231	- - - - - P N N L E T Y E W Y N K S I S R D K A	hTKT	(L10717)
141	- - - - - Y G W Y C R N T N R S K A	mTec	(X5663)
307	E Q L L R Q K G K E G A F M V R N S S Q V G M Y T V S L F S	MKK2	aa
292	E Q L L K Q E G K E G G F I V R D S S K A G K Y T V S V F A	hA tk	(X58957)
250	E K L L L D T G K E G A F M V R D S R T A G T Y T V S V F T	hTKT	(L10717)
154	E Q L L R T E D K E G G F M V R D S S Q P G L Y T V S L Y T	mTec	(X5663)
337	K - A V N D K K G T V K H Y H V H - - T N A E N K L Y L A E	MKK2	aa
322	K S T - G D P Q G V T R H Y V V - - C S T P Q S Q Y Y L A E	hA tk	(X58957)
280	K A V V S E N N P C I K H Y H I K E T N D N P K R Y Y V A E	hTKT	(L10717)
184	K F G - G E G S S G F R H Y H I K E T A T S P K K Y Y L A E	mTec	(X5663)
364	N Y C F D S I P K L I H Y H Q H N S A G M I T R L R H P V S	MKK3	aa
349	K H L F S T I P E L I N Y H Q H N S A G L I S R L K Y P V S	hA tk	(X58957)
310	K Y V F D S I P L L I N Y H Q H N G G G L V T R L R Y P V C	hTKT	(L10717)
213	K H A F G S I P E T I E Y H K H N A A G L V T R L R Y P V S	mTec	(X5663)
394	T K A N K V P D S V S L G N G I W E L K R E E I T L L K E L	MKK2	aa
379	Q Q N K N A P S T A G L G Y G S W E I D P K D L T F L K E L	hA tk	(X58957)
340	F G R Q K A P V T A G L R Y G K W V I D P S E L T F V Q E I	hTKT	(L10717)
243	T K G K N A P T T A G F S Y D K W E I N P S E L T F M R E L	mTec	(X5663)
424	G S G Q F G V V Q L G K W K G Q Y D V A V K M I K E G S M S	MKK2	aa
409	G T G Q F G V V K Y G K W R G Q Y D V A I K M I K E G S M S	hA tk	(X58957)
370	G S G Q F G L V H L G Y W L N K D K V A I K T I R E G A M S	hTKT	(L10717)
273	G S G L F G V V R L G K W R A Q Y K V A I K A I R E G A M C	mTec	(X5663)

FIG.10B



454	E D E F F Q E A Q T M M K L S H P K L V K F Y G V C S K E Y	MKK2	aa
439	E D E F I E E A K V M M N L S H E K L V Q L Y G V C T K Q R	hA tk	(X58957)
400	E E D F I E E A E V M M K L S H P K L V Q L Y G V C L E Q A	hTKT	(L10717)
303	E E D F I E E A K V M M K L T H P K L V Q L Y G V C T Q Q K	mTec	(X5663)
484	P I Y I V T E Y I S N G C L L N Y L R S H G K G L E P S Q L	MKK2	aa
469	P I F I I T E Y M A N G C L L N Y L R E M R H R F Q T Q Q L	hA tk	(X58957)
430	P I C L V F E F M E H G C L S D Y L R T Q R G L F A A E T L	hTKT	(L10717)
333	P I Y I V T E F M E R G C L L N F L R Q R Q G H F S R D M L	mTec	(X5663)
514	L E M C Y D V C E G M A F L E S H Q F I H R D L A A R N C L	MKK2	aa
499	L E M C K D V C E A M E Y L E S K Q F L H R D L A A R N C L	hA tk	(X58957)
460	L G M C L D V C E G M A Y L E E A C V I H R D L A A R N C L	hTKT	(L10717)
363	L S M C Q D V C E G M E Y L E R N S F I H R D L A A R N C L	mTec	(X5663)
544	V D R D L C V K V S D F G M T R Y V L D D Q Y V S S V G T K	MKK2	aa
529	V N D Q G V V K V S D F G L S R Y V L D D E Y T S S V G S K	hA tk	(X58957)
490	V G E N Q V I K V S D F G M T R F V L D D Q Y T S S T G T K	hTKT	(L10717)
393	V N E A G V V K V S D F G M A R Y V L D D Q Y T S S S G A K	mTec	(X5663)
574	F P V K W S A P E V F H Y F K Y S S K S D V W A F G I L M W	MKK2	aa
559	F P V R W S P P E V L M Y S K F S S K S D I W A F G V L M W	hA tk	(X58957)
520	F P V K W A S P E V F S F S R Y S S K S D V W S F G V L M W	hTKT	(L10717)
423	F P V K W C P P E V F N Y S R F S S K S D V W S F G V L M W	mTec	(X5663)
604	E V F S L G K Q P Y D L Y D N S Q V V L K V S Q G H R L Y R	MKK2	aa
589	E I Y S L G K M P Y E R F T N S E T A E H I A Q G L R L Y R	hA tk	(X58957)
550	E V F S E G K I P Y E N R S N S E V V E D I S T G F R L Y K	hTKT	(L10717)
453	E I F T E G R M P F E K N T N Y E V V T M V T R G H R L H R	mTec	(X5663)
634	P H L A S D T I Y Q I M Y S C W H E L P E K R P T F Q Q L L	MKK2	aa
619	P H L A S E K V Y T I M Y S C W H E K A D E R P T F K I L L	hA tk	(X58957)
580	P R L A S T H V Y Q I M N H C W K E R P E D R P A F S R L L	hTKT	(L10717)
483	P K L A T K Y L Y E V M L R C W Q E R P E G R P S F E D L L	mTec	(X5663)
664	S S I E P L R E K D K H	MKK2	aa
649	S N I L D V M D E E S	hA tk	(X58957)
610	R Q L A E I A E S - - - - G L	hTKT	(L10717)
513	R T I D E L V E C E E T F G R	mTec	(X5663)

FIG.10C

## TYROSINE KINASES

Inventor(s): Axel ULLRICH et al.

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1	M S N I C Q R L W E	- - - - -	MKK3 MPI aa
1	M G C V Q C K D K E A	- T - - - K L T E E R D G S L N Q - S	hFyn
1	M G C V H C K E K I S	- G - - - K G Q G G S G T G T P A - H	cYrk
1	M G S N K S K P K D A	- S Q R - R R S L E P A E N V H G - A	hSrc
1	M G C I K S K E N K S	- P A I - K Y R P E N T P E P V S - T	hYes
1	M G C V F C K K L E P	- V A T A K E D A G L E G D F R S Y G	hFgr
1	M G C I K S K G K D S L	S D D G V D L - K T Q P V R N T E R	hLyn
1	M G S M K S K	- - - F L Q V G G N T F S K T E T S A S P H C	hHck
1	M G C G C S S	- - - - - H P E D D W M E N I D V C E N C H Y	hLck
1	M G L L S S K R Q V S E	K G K G W S P V K I R T Q D K A P P	mBik
11	- - - - -	- - - - - Y L E P	MKK3 MPI aa
26	S G Y R Y G T D P T P	Q H Y P S F G V T S I P N - - Y N N F	hFyn
26	P P S Q Y D P D P T	- Q L S G A F - - T H I P D - - F N N F	cYrk
28	G G A F P A S Q T	P S K P A S A D G H R G P S A A F A P A	hSrc
28	S V S H Y G A E P T	T V S P C P S S S A K G T A V N F S S L	hYes
30	A A D H Y G P D P T	K A R P A S - S F A H I P N - - Y S N F	hFgr
30	T I Y V R D P T S N K Q	Q R P V P E S Q L L P G Q R F Q T K	hLyn
28	P V Y V P D P T S T I K	P G P N S H N S N T P G I R - - -	hHck
26	P I V P L D G K G T L L	I R N G S E V R D - P L V T Y E G S	hLck
31	P L P P L V V F N H L A	P P S P N Q - - - - -	mBik
15	Y L P C L S T E A D K S T V I E N P G A L C S P Q S Q R H G		MKK3 MPI aa
54	H A A	- - - G G Q G L T V F G G V N - - S S S H T G T L R T	hFyn
51	H A A	- - - A V S P P V P F S G P G F Y P C N T L Q A H S S	cYrk
58	A A E P	- - - - - K L F G G F N S S D T V T S P Q R A G	hSrc
58	S M T P F G G S S G V T P	F G G A S S S F S V V P S S Y P A	hYes
57	S S Q A I N P G	- - - - - F - - - - - L D S G T I R G	hFgr
60	D P E E	- - - - - Q G - - - - -	hLyn
54	E A G S	- - - - - E D - - - - -	hHck
55	N P P A	- - - - - S P L Q D - - - - -	hLck
49	D P D E	- - - - - E E - - - - -	mBik
45	H - - - - - Y F V A L F D Y Q A R T A E D L S F R A G D K		MKK3 MPI aa
79	R G G T G V T L F V A L Y D Y E A R T E D D L S F H K G E K		hFyn
78	I T G G G V T L F I A L Y D Y E A R T E D D L S F Q K G E K		cYrk
81	P L A G G V T T F V A L Y D Y E S R T E T D L S F K K G E R		hSrc
88	G L T G G V T I F V A L Y D Y E A R T E T D L S F K K G E R		hYes
74	V S G I G V T L F I A L Y D Y E A R T E D D L T F T K G E K		hFgr
66	- - - - - D I V V A L Y P Y D G I H P D D L S F K K G E K		hLyn
60	- - - - - I I V V A L Y D Y E A I H H E D L S F Q K G D Q		hHck
64	- - - - - N L V I A L H S Y E P S H D G D L G F E K G E Q		hLck
55	- - - - - R F V V A L F D Y A A V N D R D L Q V L K G E K		mBik

FIG.11A

Title: NOVEL MEGAKARYOCYTIC PROTEIN  
 TYROSINE KINASES

Inventor(s): Axel ULLRICH et al.

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69	L	Q	V	L	D	T	L	H	E	G	W	W	F	A	R	H	L	E	K	R	R	D	G	S	S	Q	Q	L	Q	G	MKK3 MPI	aa
109	F	Q	I	L	N	S	S	E	G	D	W	W	E	A	R	S	L	T	T	G	E	T	G	-	-	-	-	-	-	-	hFyn	
108	F	H	I	I	N	N	T	E	G	D	W	W	E	A	R	S	L	S	S	G	A	T	G	-	-	-	-	-	-	-	cYrk	
111	L	Q	I	V	N	N	T	E	G	D	W	W	L	A	H	S	L	S	T	G	Q	T	G	-	-	-	-	-	-	-	hSrc	
118	F	Q	I	I	N	N	T	E	G	D	W	W	E	A	R	S	I	A	T	G	K	N	G	-	-	-	-	-	-	-	hYes	
104	F	H	I	L	N	N	T	E	G	D	W	W	E	A	R	S	L	S	S	G	K	T	G	-	-	-	-	-	-	-	hFgr	
90	M	K	V	L	E	E	H	-	G	E	W	W	K	A	K	S	L	L	T	K	K	E	G	-	-	-	-	-	-	-	hLyn	
84	M	V	V	L	E	E	S	-	G	E	W	W	K	A	R	S	L	A	T	R	K	E	G	-	-	-	-	-	-	-	hHck	
88	L	R	I	L	E	Q	S	-	G	E	W	W	K	A	Q	S	L	T	T	G	Q	E	G	-	-	-	-	-	-	-	hLck	
79	L	Q	V	L	R	S	T	-	G	D	W	W	L	A	R	S	L	V	T	G	R	E	G	-	-	-	-	-	-	-	mBlk	
99	Y	I	P	S	N	Y	V	A	E	D	R	S	L	Q	A	E	P	W	F	F	G	A	I	G	R	S	D	A	E	K	MKK3 MPI	aa
132	Y	I	P	S	N	Y	V	A	P	V	D	S	I	Q	A	E	E	W	Y	F	G	K	L	G	R	K	D	A	E	R	hFyn	
131	Y	I	P	S	N	Y	V	A	P	V	D	S	I	Q	A	E	E	W	Y	F	G	K	I	G	R	K	D	A	E	R	cYrk	
134	Y	I	P	S	N	Y	V	A	P	S	D	S	I	Q	A	E	E	W	Y	F	G	K	I	T	R	E	S	E	R	hSrc		
141	Y	I	P	S	N	Y	V	A	P	A	D	S	I	Q	A	E	E	W	Y	F	G	K	M	G	R	K	D	A	E	R	hYes	
127	C	I	P	S	N	Y	V	A	P	V	D	S	I	Q	A	E	E	W	Y	F	G	K	I	G	R	K	D	A	E	R	hFgr	
112	F	I	P	S	N	Y	V	A	K	L	N	T	L	E	T	E	E	W	F	F	K	D	I	T	R	K	D	A	E	R	hLyn	
106	Y	I	P	S	N	Y	V	A	R	V	D	S	L	E	T	E	E	W	F	F	K	G	I	S	R	K	D	A	E	R	hHck	
110	F	I	P	F	N	F	V	A	K	A	N	S	L	E	P	E	P	W	F	F	K	N	L	S	R	K	D	A	E	R	hLck	
101	Y	V	P	S	N	F	V	A	P	V	E	T	L	E	V	E	K	W	F	F	R	T	I	S	R	K	D	A	E	R	mBlk	
129	Q	L	L	Y	S	E	N	K	T	G	S	F	L	I	R	E	S	E	S	Q	K	G	E	F	S	L	S	V	L	D	MKK3 MPI	aa
162	Q	L	L	S	F	G	N	P	R	G	T	F	L	I	R	E	S	E	T	T	K	G	A	Y	S	L	S	I	R	D	hFyn	
161	Q	L	L	C	H	G	N	C	R	G	T	F	L	I	R	E	S	E	T	T	K	G	A	Y	S	L	S	I	R	D	cYrk	
164	L	L	L	N	A	E	N	P	R	G	T	F	L	V	R	E	S	E	T	T	K	G	A	Y	C	L	S	V	S	D	hSrc	
171	L	L	L	N	P	G	N	Q	R	G	I	F	L	V	R	E	S	E	T	T	K	G	A	Y	S	L	S	I	R	D	hYes	
157	Q	L	L	S	P	G	N	P	Q	G	A	F	L	I	R	E	S	E	T	T	K	G	A	Y	S	L	S	I	R	D	hLyn	
142	Q	L	L	A	P	G	N	S	A	G	A	F	L	I	R	E	S	E	T	L	K	G	S	F	S	L	S	V	R	D	hHck	
136	Q	L	L	A	P	G	N	M	L	G	S	F	M	I	R	D	S	E	T	T	K	G	S	Y	S	L	S	V	R	D	hHck	
140	Q	L	L	A	P	G	N	T	H	G	S	F	L	I	R	E	S	E	S	T	A	G	S	F	S	L	S	V	R	D	hLck	
131	Q	L	L	A	P	M	N	K	A	G	S	F	L	I	R	E	S	E	S	N	K	G	A	F	S	L	S	V	K	D	mBlk	
159	-	-	-	-	-	G	A	V	V	K	H	Y	R	I	K	R	L	D	E	G	G	F	F	L	T	R	R	I	F	MKK3 MPI	aa	
192	W	D	D	M	K	G	D	H	V	K	H	Y	K	I	R	K	L	D	N	G	G	Y	Y	I	T	T	R	A	Q	F	hFyn	
191	W	D	E	A	K	G	D	H	V	K	H	Y	K	I	R	K	L	D	S	G	G	Y	Y	I	T	T	R	A	Q	F	cYrk	
194	F	D	N	A	K	G	L	N	V	K	H	Y	K	I	R	K	L	D	S	G	G	F	Y	I	T	S	R	T	Q	F	hSrc	
201	W	D	E	I	R	G	D	N	V	K	H	Y	K	I	R	K	L	D	N	G	G	Y	Y	I	T	T	R	A	Q	F	hYes	
187	W	D	Q	T	R	G	D	H	V	K	H	Y	K	I	R	K	L	D	M	G	G	Y	Y	I	T	T	R	V	Q	F	hFgr	
172	F	D	P	V	H	G	D	V	I	K	H	Y	K	I	R	S	L	D	N	G	G	Y	Y	I	S	P	R	I	T	F	hLyn	
166	Y	D	P	R	Q	G	D	T	V	K	H	Y	K	I	R	T	L	D	N	G	G	F	Y	I	S	P	R	S	T	F	hHck	
170	F	D	Q	N	Q	G	E	V	V	K	H	Y	K	I	R	N	L	D	N	G	G	F	Y	I	S	P	R	I	T	F	hLck	
161	I	T	T	-	Q	G	E	V	V	K	H	Y	K	I	R	S	L	D	N	G	G	Y	Y	I	S	P	R	I	T	F	mBlk	

FIG.11B

Title: NOVEL MEGAKARYOCYTIC PROTEIN

TYROSINE KINASES

Inventor(s): Axel ULLRICH et al.

Appl. No.: 09/977,260

184	S	T	L	N	E	F	V	S	H	Y	T	K	T	S	D	G	L	C	V	K	L	G	K	P	C	L	K	I	Q	V	MKK3 MPI	oo
222	E	T	L	Q	Q	L	V	Q	H	Y	S	E	R	A	A	G	L	C	C	R	L	V	V	P	C	H	K	G	M	-	hFyn	
221	D	T	I	Q	Q	L	V	Q	H	Y	I	E	R	A	A	G	L	C	C	R	L	A	V	P	C	P	K	G	T	-	cYrk	
224	N	S	L	Q	Q	L	V	A	Y	Y	S	K	H	A	D	G	L	C	H	R	L	T	T	V	C	P	T	S	K	-	hSrc	
231	D	T	L	Q	K	L	V	K	H	Y	T	E	H	A	D	G	L	C	H	K	L	T	T	V	C	P	T	V	K	-	hYes	
217	N	S	V	Q	E	L	V	Q	H	Y	M	E	V	N	D	G	L	C	N	L	L	I	A	P	C	T	I	M	K	-	hFgr	
202	P	C	I	S	D	M	I	K	H	Y	Q	K	Q	A	D	G	L	C	R	R	L	E	K	A	C	I	S	P	K	-	hLyn	
196	S	T	L	Q	E	L	V	D	H	Y	K	K	G	N	D	G	L	C	Q	K	L	S	V	P	C	M	S	S	K	-	hHck	
200	P	G	L	H	E	L	V	R	H	Y	T	N	A	S	D	G	L	C	T	R	L	S	R	P	C	Q	T	Q	K	-	hLck	
190	P	T	L	Q	A	L	V	Q	H	Y	S	K	K	G	D	G	L	C	Q	K	L	T	L	P	C	V	N	L	A	-	mBik	
214	P	A	P	F	D	L	S	Y	K	T	V	D	Q	W	E	I	D	R	N	S	I	Q	L	L	K	R	L	G	S	G	MKK3 MPI	oo
251	P	R	L	T	D	L	S	V	K	T	K	D	V	W	E	I	P	R	E	S	L	Q	L	I	K	R	L	G	N	G	hFyn	
250	P	K	L	A	D	L	S	V	K	T	K	D	V	W	E	I	P	R	E	S	L	Q	L	L	Q	K	L	G	N	G	cYrk	
253	P	Q	T	Q	G	L	A	-	-	-	K	D	A	W	E	I	P	R	E	S	L	R	L	E	V	K	L	G	Q	G	hSrc	
260	P	Q	T	Q	G	L	A	-	-	-	K	D	A	W	E	I	P	R	E	S	L	R	L	E	V	K	L	G	Q	G	hYes	
246	P	Q	T	L	G	L	A	-	-	-	K	D	A	W	E	I	S	R	S	S	I	T	L	E	R	R	L	G	T	G	hFgr	
231	P	Q	-	-	-	-	K	P	W	D	K	D	A	W	E	I	P	R	E	S	I	K	L	V	K	R	L	G	A	G	hLyn	
225	P	Q	-	-	-	-	K	P	W	E	K	D	A	W	E	I	P	R	E	S	L	K	L	E	K	K	L	G	A	G	hHck	
229	P	Q	-	-	-	-	K	P	W	W	E	D	E	W	E	V	P	R	E	T	L	K	L	V	E	R	L	G	A	G	hLck	
219	P	K	-	-	-	-	N	L	W	A	Q	D	E	W	E	I	P	R	Q	S	L	K	L	V	R	K	L	G	S	G	mBik	
244	Q	F	G	E	V	W	E	G	L	W	N	N	T	T	P	V	A	V	K	T	L	K	P	G	S	M	D	P	N	D	MKK3 MPI	oo
281	Q	F	G	E	V	W	M	G	T	W	N	G	N	T	K	V	A	I	K	T	L	K	P	G	T	M	S	P	E	S	hFyn	
280	Q	F	G	E	V	W	M	G	T	W	N	G	T	T	K	V	A	V	K	T	L	K	P	G	T	M	S	P	E	A	cYrk	
280	C	F	G	E	V	W	M	G	T	W	N	G	T	T	R	V	A	I	K	T	L	K	P	G	T	M	S	P	E	A	hSrc	
287	C	F	G	E	V	W	M	G	T	W	N	G	T	T	K	V	A	I	K	T	L	K	P	G	T	M	M	P	E	A	hYES	
273	C	F	G	D	V	W	L	G	T	W	N	G	S	T	K	V	A	V	K	T	L	K	P	G	T	M	S	P	K	A	hFgr	
257	Q	F	G	E	V	W	M	G	Y	Y	N	N	S	T	K	V	A	V	K	T	L	K	P	G	T	M	S	V	Q	A	hLyn	
251	Q	F	G	E	V	W	M	A	T	Y	N	K	H	T	K	V	A	V	K	T	M	K	P	G	S	M	S	V	E	A	hHck	
255	Q	F	G	E	V	W	M	G	Y	Y	N	G	H	T	K	V	A	V	K	S	L	K	Q	G	S	M	S	P	D	A	hLck	
245	Q	F	G	E	V	W	M	G	Y	Y	K	N	N	M	K	V	A	T	K	T	L	K	E	G	T	M	S	P	E	A	mBik	
274	F	L	R	E	A	Q	I	M	K	N	L	R	H	P	K	L	I	Q	L	Y	A	V	C	T	L	E	D	P	I	Y	MKK3 MPI	oo
311	F	L	E	E	A	Q	I	M	K	K	L	K	H	D	K	L	V	Q	L	Y	A	V	V	S	-	E	E	P	I	Y	hFyn	
310	F	L	E	E	A	Q	I	M	K	R	L	R	H	D	K	L	V	Q	L	Y	A	V	V	S	-	E	E	P	I	Y	cYrk	
310	F	L	Q	E	A	Q	V	M	K	K	L	R	H	E	K	L	V	Q	L	Y	A	V	V	S	-	E	E	P	I	Y	hSrc	
317	F	L	Q	E	A	Q	I	M	K	K	L	R	H	D	K	L	V	P	L	Y	A	V	V	S	-	E	E	P	I	Y	hYes	
303	F	L	E	E	A	Q	V	M	K	L	L	R	H	D	K	L	V	Q	L	Y	A	V	V	S	-	E	E	P	I	Y	hFgr	
287	F	L	E	E	A	N	L	M	K	T	L	Q	H	D	K	L	V	R	L	Y	A	V	V	T	R	E	E	P	I	Y	hLyn	
281	F	L	A	E	A	N	V	M	K	T	L	Q	H	D	K	L	V	K	L	H	A	V	V	T	K	E	-	P	I	Y	hHck	
285	F	L	A	E	A	N	L	M	K	Q	L	Q	H	Q	R	L	V	R	L	Y	A	V	V	T	-	Q	E	P	I	Y	hLck	
275	F	L	G	E	A	N	V	M	K	T	L	Q	H	E	R	L	V	R	L	Y	A	V	V	T	R	E	-	P	I	Y	mBik	

FIG.11C

Title: NOVEL MEGAKARYOCYTIC PROTEIN

TYROSINE KINASES

Inventor(s): Axel ULLRICH et al.

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304	I I T E L M R H G S L Q E Y L Q N D I G S K I H L T Q Q V D	MKK3 MPI	aa
340	I V T E Y M N K G S L L D F L K D G E G R A L K L P N L V D	hFyn	
339	I V T E F M S Q G S L L D F L K D G D G R Y L K L P Q L V D	cYrk	
339	I V T E Y M S K G S L L D F L K G E T G K Y L R L P Q L V D	hSrc	
346	I V T E F M S K G S L L D F L K E G D G K Y L K L P Q L V D	hYes	
332	I V T E F M C H G S L L D F L K N P E G Q D L R L P Q L V D	hFgr	
317	I I T E Y M A K G S L L D F L K S D E G G K V L L P K L I D	hLyn	
310	I I T E F M A K G S L L D F L K S D E G S K Q P L P K L I D	hHck	
314	I I T E Y M E N G S L V D F L K T P S G I K L T I N K L L D	hLck	
304	I V T E Y M A R G C L L D F L K T D E G S R L S L P R L I D	mBlk	
334	M A A Q V A S G M A Y L E S R N Y I H R D L A A R N V L V G	MKK3 MPI	aa
370	M A A Q V A A G M A Y I E R M N U I H R D L R S A N I L V G	hFyn	
369	M A A Q I A A G M A Y I E R M N Y I H R D L R A A N I L V G	cYrk	
369	M A A Q I A S G M A Y V E R M N Y V H R D L R A A N I L V G	hSrc	
376	M A A Q I A D G M A Y I E R M N Y I H R D L R A A N I L V G	hYes	
362	M A A Q V A E G M A Y M E R M N Y I H R D L R A A N I L V G	hFgr	
347	F S A Q I A E G M A Y I E R K N Y I H R D L R A A N V L V S	hLyn	
340	F S A Q I A E G M A F I E Q R N Y I H R D L R A A N I L V S	hHck	
344	M A A Q I A E G M A F I E E R N Y I H R D L R A A N I L V S	hLck	
334	M S A Q V A E G M A Y I E R M N S I H R D L R A A N I L V S	mBlk	
364	E H N I Y K V A D F G L A R V F K V D N E D I Y E S R H E I	MKK3 MPI	aa
400	N G L I C K I A D F G L A R L I - - - E D N E Y T A R Q G A	hFyn	
399	D N L V C K I A D F G L A R L I - - - E D N E Y T A R Q G A	cYrk	
399	E N L V C K V A D F G L A R L I - - - E D N E Y T A R Q G A	hSrc	
406	E N L V C K I A D F G L A R L I - - - E D N E Y T A R Q G A	hYes	
392	E R L A C K I A D F G L A R L I - - - K D D E Y N P C Q G S	hFgr	
377	E S L M C K I A D F G L A R V I - - - E D N E Y T A R E G A	hLyn	
370	A S L V C K I A D F G L A R V I - - - E D N E Y T A R E G A	hHck	
374	D T L S C K I A D F G L A R L I - - - E D N E Y T A R E G A	hLck	
364	E T L C C K I A D F G L A R T I - - - D S E Y T A Q E G A	mBlk	
394	K L P V K W T A P E A I R S N K F S I K S D V W S F G I L L	MKK3 MPI	aa
427	K F P I K W T A P E A A L Y G R F T I K S D V W S F G I L L	hFyn	
426	K F P I K W T A P E A A L F G K F T I K S D V W S F G I L L	cYrk	
426	K F P I K W T A P E A A L Y G R F T I K S D V W S F G I L L	hSrc	
433	K F P I K W T A P E A A L Y G R F T I K S D V W S F G I L Q	hYes	
419	K F P I K W T A P E A A L F G R F T I K S D V W S F G I L L	hFgr	
404	K F P I K W T A P E A I N F G C F T I K S D V W S F G I L L	hLyn	
397	K F P I K W T A P E A I N F G S F T I K S D V W S F G I L L	hHck	
401	K F P I K W T A P E A I N Y G T F T I K S D V W S F G I L L	hLck	
390	K F P I K W T A P E A I H F G V F T I K A D V W S F G V L L	mBlk	

FIG.11D

## TYROSINE KINASES

Inventor(s): Axel ULLRICH et al.

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424	Y E I I T Y G K M P Y S G M T G A Q V I Q M L A Q N Y R L P	MKK3 MPI	aa
457	T E L V T K G R V P Y P G M N N R E V L E Q V E R G Y R M P	hFyn	
456	T E L V T K G R V P Y P G M N N R E V L E Q V E R G Y R M Q	cYrk	
456	T E L T T K G R V P Y P G M V N R E V L D Q V E R G Y R M P	hSrc	
463	T E L V T K G R V P Y P G M V N R E V L E Q V E R G Y R M P	hYes	
449	T E L I T K G R I P Y P G M N K R E V L E Q V E Q G Y H M P	hFgr	
434	Y E I V T Y G K I P Y P G R T N A D V M T A L S Q G Y R M P	hLyn	
427	M E I V T Y G R I P Y P G M S N P E V I R A L E R G Y R M P	hHck	
431	T E I V T H G R I P Y P G M T N P E V I Q N L E R G Y R M V	hLck	
420	M V I V T Y G R V P Y P G M S N P E V I R S L E H G Y R M P	mBik	
454	Q P S N C P Q Q F Y N - I M L E C W N A E P K E R P T F E T	MKK3 MPI	aa
487	C P Q D C P I S L H - E L M I H C W K K D P E E R P T F E Y	hFyn	
486	C P G G C P P S L H - D V M V Q C W K R E P E E R P T F E Y	cYrk	
486	C P P E C P E S L H - D L M C Q C W R K E P E E R P T F E Y	hSrc	
493	C P Q G C P E S L H - E L M N L C W K K D P D E R P T F E Y	hYes	
479	C P P G C P A S L Y - E A M E Q T W R L D P E E R P T F E Y	hFgr	
464	R V E N C P D E L Y - D I M K M C W K E K A E E R P T F D Y	hLyn	
457	R P E N C P E E L Y - N I M M R C W K N R P E E R P T F E Y	hHck	
461	R P D N C P E E L Y - Q L M R L C W K E R P E D R P T F D Y	hLck	
450	C P E T C P P E L Y N D I I T E C W R G R P E E R P T F E F	mBik	
483	L R W K L E D Y F E - T D S S Y S D A N N F I R	MKK3 MPI	aa
516	L Q S F L E D Y F T A T E P Q Y Q P G E N - - - L	hFyn	
515	L Q S F L E D Y F T A T E P Q Y Q P G D N - - - Q	cYrk	
515	L Q A F L E D Y F T S T E P Q Y Q P G E N - - - L	hSrc	
522	I Q S F L E D Y F T A T E P Q Y Q P G E N - - - L	hYes	
508	L Q S F L E D Y F T S A E P Q Y Q P G D Q - - - T	hFgr	
493	L Q S V L D D F Y T A T E G Q Y Q Q - - Q - - - P	hLyn	
486	T Q S V L D D F Y T A T E S Q Y Q Q - - Q - - - P	hHck	
490	L R S V L E D F F T A T E G Q Y Q P - - Q - - - P	hLck	
480	L Q S V L E D F Y T A T E G Q Y E L - - Q - - - P	mBik	

FIG.11E

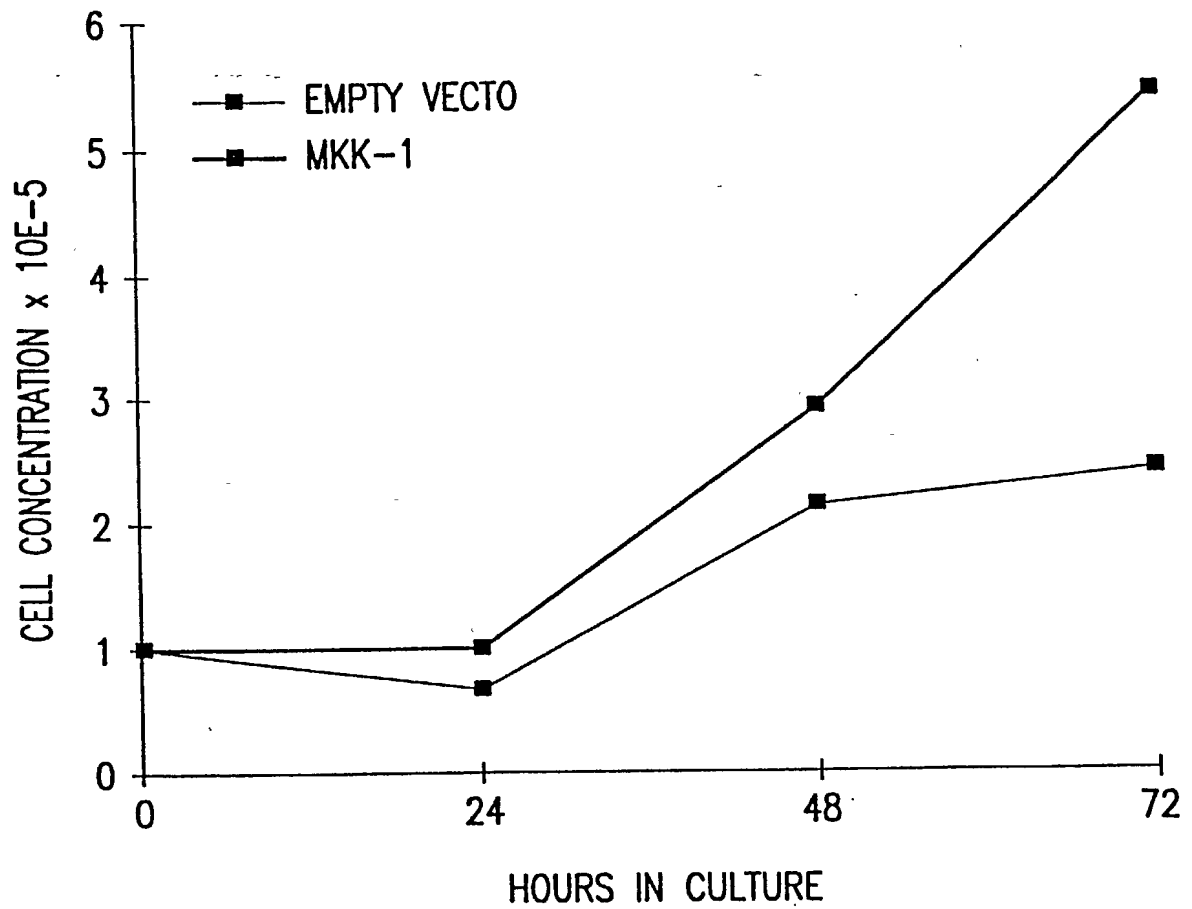


FIG.12

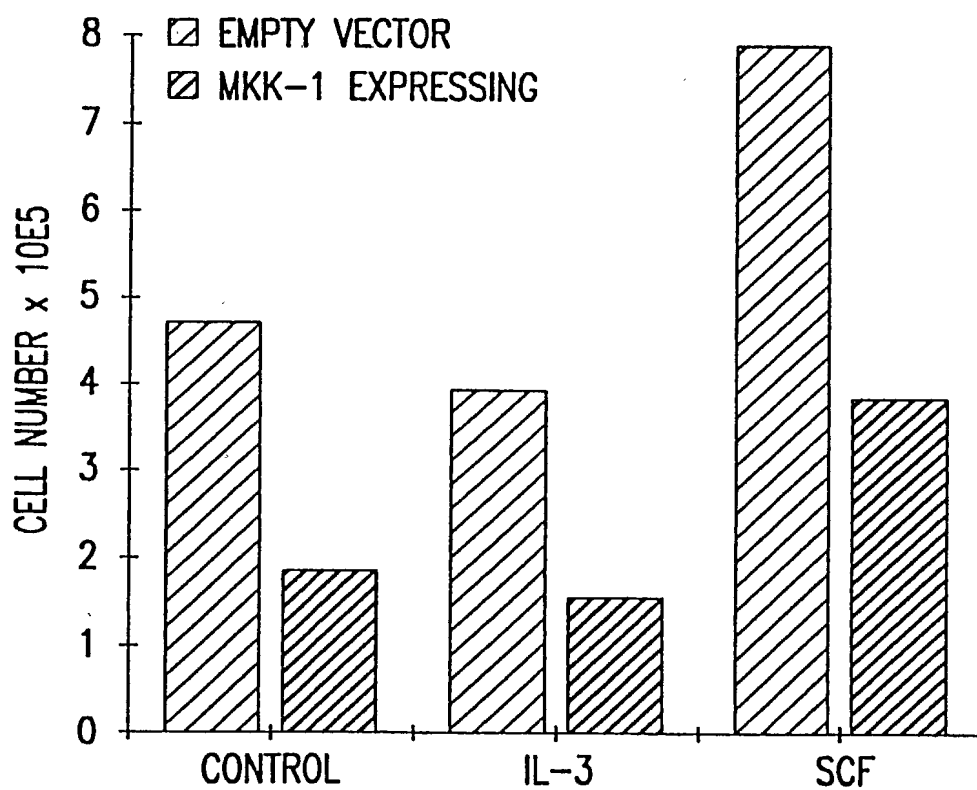


FIG.13



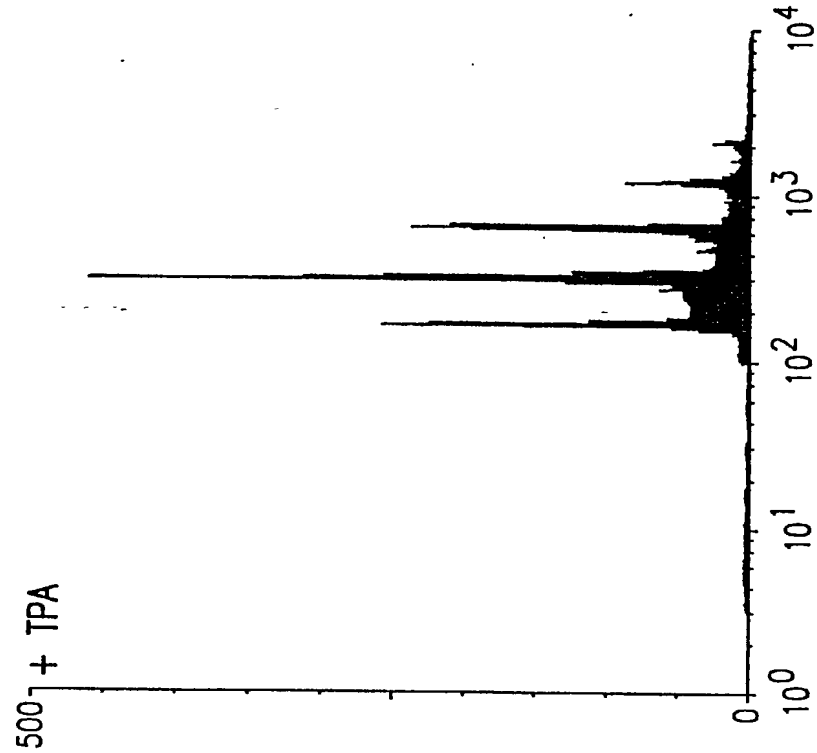


FIG. 14B

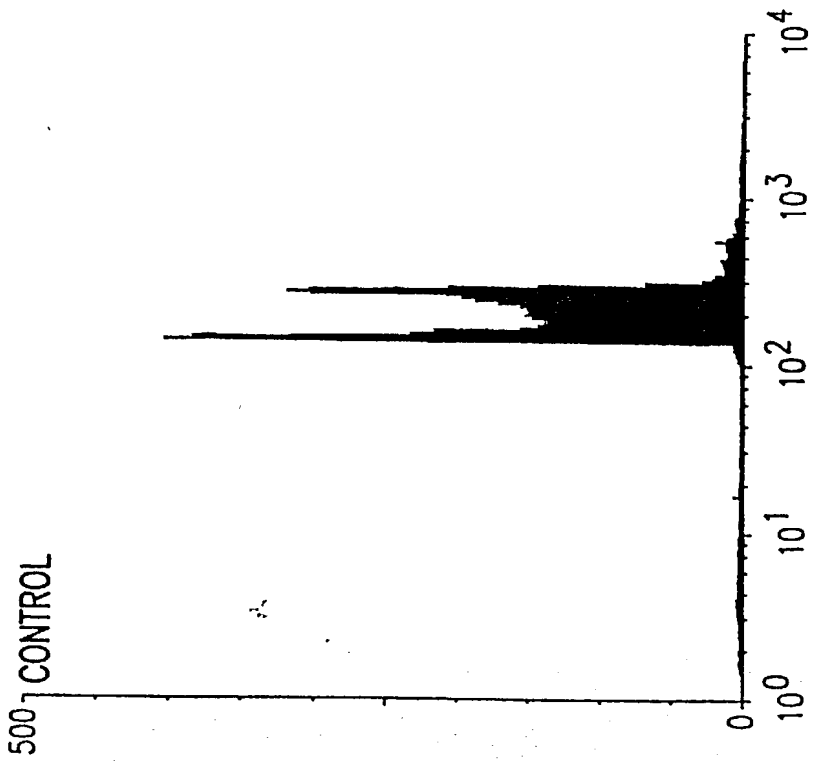


FIG. 14A

Title: NOVEL MEGAKARYOCYTIC PROTEIN-  
TYROSINE KINASES  
Inventor(s): Axel ULLRICH et al.  
Appl. No.: 09/977,260

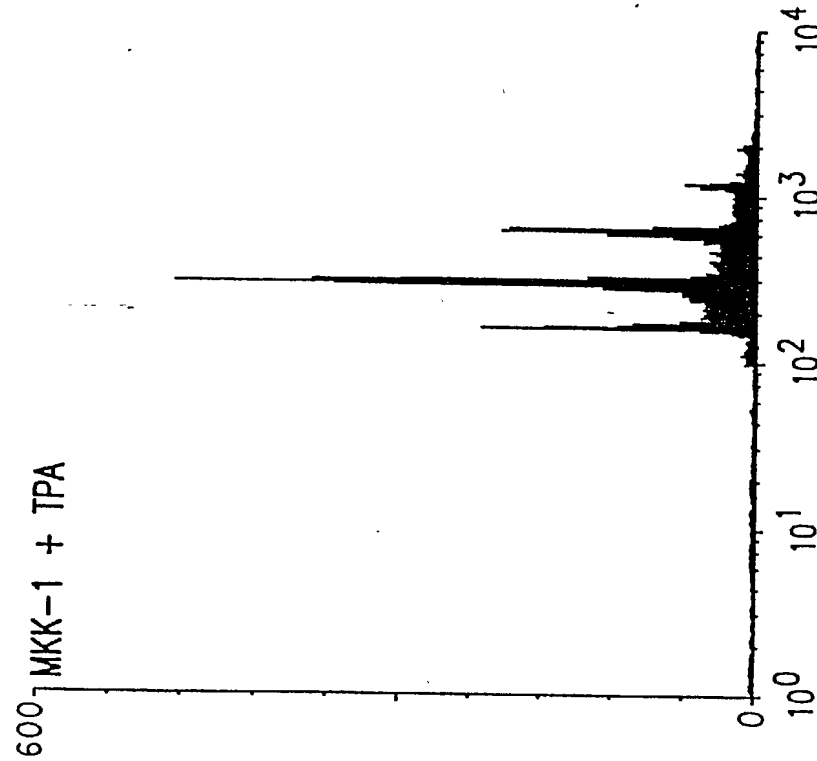


FIG.14D

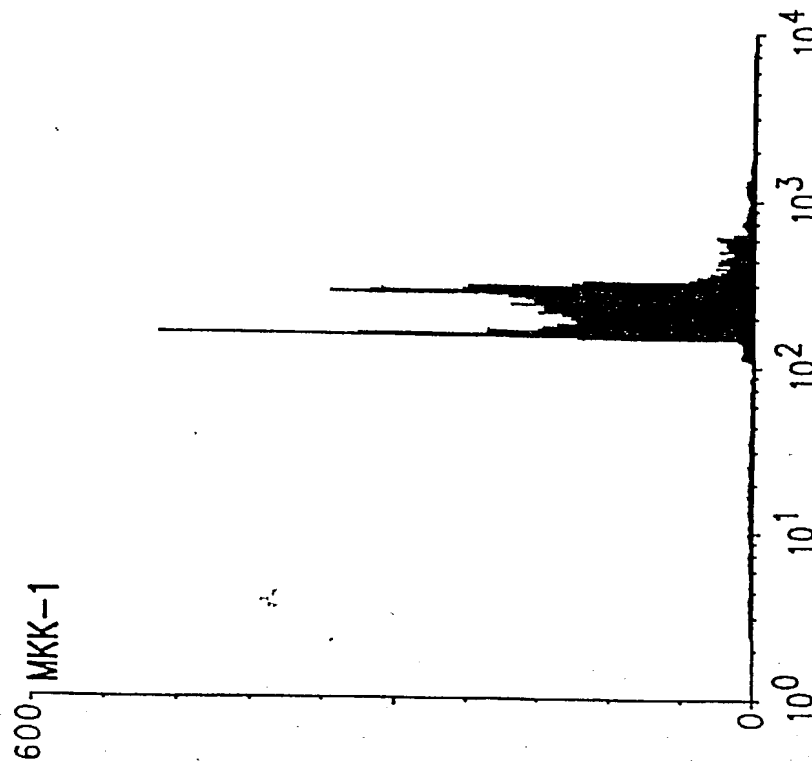


FIG.14C